

(d) Write the output of the following HTML code segments when they are rendered by the web browser.

```
<html>
<body>
  <ul type='square'>
    <li>ICT</li>
    <li>Mathematics</li>
    <ol type='a' start='5'>
      <li>OL</li>
      <li>AL</li>
    </ol>
    <li>Science</li>
  </ul>
  <dl>
    <dt><b>CPU</b></dt>
    <dd>Central Processing Unit</dd>
    <dt>ROM</dt>
    <dd>Read Only Memory</dd>
  </dl>
</body>
</html>
```

(e) Briefly explain the following terms in CSS including the syntax used to create each..

Inline CSS

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Internal CSS

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External CSS

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2. (a) Select the most suitable words given in the list below to match the given description in relation with the electronic commerce.

{Pure Brick, Virtual Community, Pure Click, Information Broker, Reverser Auction, Group Purchase, e-Commerce, B2B, e-Business, e-Marketing, Credit cards }

- a): The companies that conduct their business operations only online and do not do business offline.
- b): Provide information retrieval from publicly accessible data sources, most often online databases for a fee.
- c): Offers products and services at significantly reduced prices on the condition that a minimum number of buyers would make the purchase.
- d): Buying and selling product and services through the internet.
- e): The sellers bid for the prices at which they are willing to sell their goods and services.

(b) Consider the following program to write the answers for the following questions.

```
x=1
n=int(input('Enter a number:')) #Line A
if n==0:
    x=1
else:
    while (n>=1):
        x=x*n
        n=n-1
print(x)
```

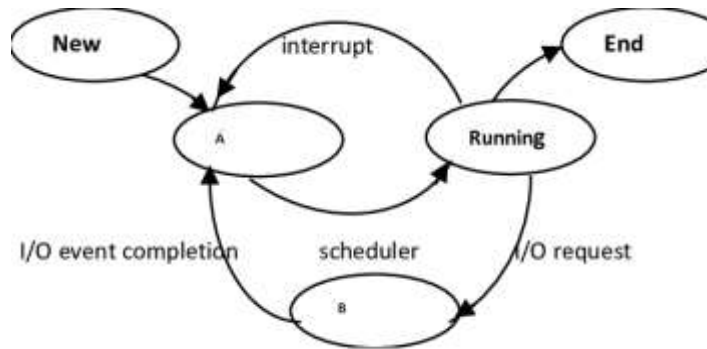
- a) What is the purpose of the *int()* function in the line A of the program?
- b) If the input number is 5, what will be the output values?
- c) What is the purpose of this program?

3. (a) Select the most suitable words given in the list below to match the given description in relation with the operating system.

{ Short Term Scheduler, Swap out, Swap in, Process Control Block, Dispatcher, Long Term Scheduler, Medium Term Scheduler, Timer, Interrupt, Program Counter, Context Switch, Stack Register, Device Driver, Accumulator, Degree of Multiprogramming, Multitasking, Spooling, Multiprocessor, Multiprogramming, CPU bound process, IO bound process, Throughput }

- i.: This is a kind of signal which will be sent to the CPU by a timer to break the machine cycle (Fetch, Decode and Execute)
- ii.: It is scheduler which select a process from a ready queue and allocate to the CPU.
- iii.: When a CPU moves from one process to another process the OS saves the details of the first process in PCB and reload the information about the second process from the PCB.
- iv.: The number of process in the memory.
- v.: The CPU runs more than once task concurrently.
- vi.: The process is moving from memory to hard disk temporarily.
- vii.: The number of processes completed per unit time.
- viii.: A data structure which contains the process information like process id, program counter, process state, memory allocation information and CPU scheduling information.
- ix.: A CPU register which contains the address of the memory location where the next instruction is to be executed by the CPU.
- x.: A software code which knows the details of the I/O device functionalities in details to operate the device successfully.

(b) The following is the state transition diagram for the process:



i. Complete the names of the blank A and B states in the above diagram.

A:.....

B:.....

ii. Describe the state transition which is done by the following scheduler in OS.

Short Term Scheduler:.....

Long Term Scheduler:.....

iii. A computer memory has 4GB RAM.

a) Find the number of bits for the memory address.

.....

b) Find the starting address and the last address of the memory.

Start Address:.....

Final Address:.....

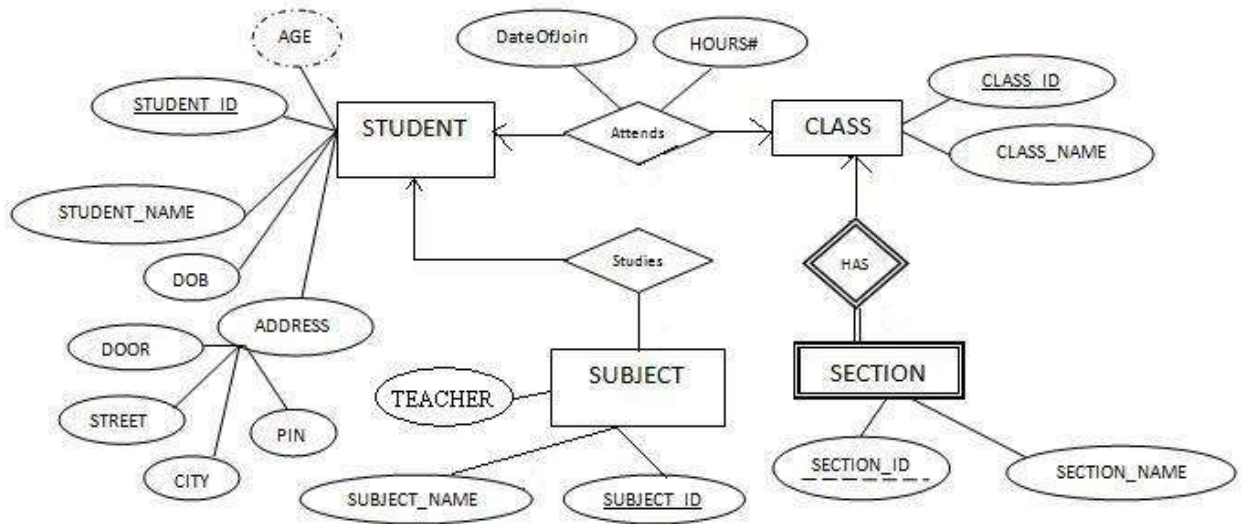
c) What is the external fragmentation problem?

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d) List the two solutions for the external fragmentation problem.

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4. (a) Answer the following questions using the student and class relationship shown below entity relationship diagram.



- a) List the derive attribute:.....
- b) List the weak entry:.....
- c) List the partial key:.....
- d) List the composite attribute:.....
- e) Write the schema for the following:
- i. Student entity:
 - ii. Class entity
 - iii. Attends relationship

(b) Select the most suitable words given in the list below to match the given description in relation with the Networking.

{ALOHA, Slotted ALOHA, CSMA, TCP, UDP, SCTP, DHCP, Application layer, Session layer, Presentation layer, Transport layer, Network layer, Physical layer, Data link layer, Domain Name system, ADSL, CIDR, OSI Model, Fire wall, Encryption, Proxy server. }

- i.: TCP and UDP protocols are running on this layer.
- ii.: IP protocol is running on this layer.
- iii.: HTTP, FTP protocols are running on this layer.
- iv.: Device to device or hop to hop communication is done by this layer.
- v.: This is used to convert the domain name into the IP address.
- vi.: This is the reliable protocol in the internet.
- vii.: This is the protocol used to assign the IP address to machines dynamically time to time.
- viii.: A simple communications scheme in which each source (transmitter) in a network sends data whenever there is a frame to send. If the frame successfully reaches the destination (receiver), the next frame is sent.
- ix.: Process to process or application to application communication is done by this layer.
- x.: A server which works as cache and block some web site access.

5. (a) List the two advantage of the complement method in representing the negative numbers.

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(b) Illustrate the operating of the $20_{10} + (-10_{10})$ using the 8 bits twos complement method.

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© Find the final value for the following Python expressions.

Expression	Value
<code>2**3//3 5</code>	
<code>25%9^6</code>	
<code>~10+10</code>	
<code>~(-10)+10</code>	
<code>10<<3</code>	